

U.S. Patent Application Serial No. 10/526,156
Amendment filed June 30, 2006
Reply to OA dated March 7, 2006

REMARKS

Applicants have corrected the specification at page 6 as requested in the Office Action and have also corrected a typographical error at page 11. The claims have been amended to clarify the present invention.

As now amended, with support therefor found at page 3, lines 13 to 28 of the specification, Claim 1 is to a fluid control device that has a valve case having a fluid channel, a valve element holder upwardly or downwardly movable for holding a valve element for opening or closing the fluid channel, a lower casing provided on an upper portion of the valve case, an upper casing joined to the lower casing, and a valve stem disposed in a space defined by the upper and lower casings and having a lower end in bearing contact with the valve element holder. A piston is secured to the valve stem, an upper space is formed between and defined by an upper surface of the piston and a lower surface of a top wall of the upper casing, and a lower space is formed between and defined by a lower surface of the piston and an upper surface of a bottom wall of the lower casing. The fluid control device has a compression coil spring provided in one of the upper space and the lower space for biasing the piston, and a compressed air admitting passageway in communication with the other of the upper and lower spaces and when the compression coil spring for biasing the piston is provided in the upper space with the compressed air admitting passageway in communication with the lower space, the fluid control device serves as a fluid control device of the normally closed type wherein the piston is biased downward axially. When the compression coil spring for biasing the piston is provided in the lower space with the compressed air admitting passageway in communication with the upper space, the fluid control device serves as a fluid control device of the normally open type wherein the piston is biased upward axially. The normally closed fluid control

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device and the normally open fluid control device can thus be obtained by using the valve case, valve element, valve element holder, lower casing, upper casing, valve stem and piston as common components.

As now defined, when the compression coil spring for biasing the piston is provided in the upper space with the compressed air admitting passageway in communication with the lower space, the fluid control device serves as a fluid control device of the normally closed type wherein the piston is biased downward axially, and when the compression coil spring for biasing the piston is provided in the lower space with the compressed air admitting passageway in communication with the upper space, the fluid control device of the invention serves as a fluid control device of the normally open type wherein the piston is biased upward axially. The normally closed fluid control device and the normally open fluid control device are thus obtained by using the valve case, valve element, valve element holder, lower casing, upper casing, valve stem and piston as common components. This reduces the combined number of components of the fluid control devices. Such an arrangement and the results obtained are not taught or suggested in Sugano et al. Reconsideration and removal of the rejection of Claims 1 and 2 are respectfully requested.

In the Office Action, Claim 3 is rejected under 35 U.S.C. 103(a) as unpatentable over Sugano et al. in combination with Wells (U.S. 3,958,592); and Claims 4-6 are rejected as obvious in view of the combination of those references when further combined with Ohmi et al. (U.S. 4,828,219). Reconsideration and removal of these rejections are respectfully requested in view of the following remarks.

In the Office Action, it is admitted that Sugano et al. does not disclose an annular recess on the bottom wall upper surface of the lower casing. It is alleged, however, that Wells teaches a raised

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portion on such a bottom wall and that such a raised portion defines an annular recess that receives a spring. It is further alleged that it would have been obvious to modify Sugano et al. with the Wells teaching to arrive at the present claimed fluid control device of Claim 3.

Applicants do not believe that the “raised portion” of the Wells valve arrangement would lead to the recess of the present claimed fluid control device. The presence of the recess (16) in the present top wall lower surface of the upper casing (8) and the recess (12) in the bottom wall upper surface of the lower casing (7) enables the use of the upper and lower casings of the control device for either normally open or normally closed devices, with the resultant advantages. Such is not suggested in Sugano et al. or Wells. Also, there is no motivation in the Sugano et al. or Wells references that would lead one to combine these teachings absent Applicants’ disclosure.

The Ohmi reference does not cure the deficiencies of the Sugano et al. and Wells combination and, for that reason, Claims 4-6 which are dependent directly or indirectly from Claim 3 are believed to be patentable.

In view of the present amendments to the claims and the above remarks, Claims 1-6 are believed to be patentable and early action towards allowance thereof is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants’ undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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